



Bartın İlinde Mobilya İşletmeleri İş Sağlığı ve Güvenliği Uygulamaları

Bülent KAYGIN^{1*}, Özlem YILDIZ¹

¹ Bartın University, Faculty of Forestry, Department of Forest Industry Engineering, 74100, Bartın, TURKEY

Öz

İş sağlığı ve güvenliği kanunu ilk olarak 30 Haziran 2012’de Resmi Gazete’de yayımlanarak yürürlüğe girmiştir. 1 Ocak 2014 tarihinden itibaren, sadece büyük işyerleri değil, ‘riskli’ sınıfta yer alan küçük esnafın da iş güvenliği uzmanı, hekim ve yardımcı sağlık personeli çalıştırmak zorunda olduğu “İş Sağlığı ve Güvenliği Kanunu” kapsamında çalışma hayatında yer edinmiştir. Kanun, çalışanların daha sağlıklı bir ortamda çalışmalarını sağlamak, işçilerin beden ve ruh sağlıklarını korumak, iş kazalarına uğramalarını önlemek amacıyla riskleri belirlemek ve belirlenen riskleri ortadan kaldırmak amacı ile mevzuatta belirtilen iş sağlığı ve güvenliği önlemlerine uyulmanın gerekliliği üzerine inşa edilmiştir.

Bu çalışmanın amacı, Bartın ilinde araştırma alanı olarak seçilmiş “mobilya sektöründe” faaliyet gösteren bazı mikro, küçük ve orta ölçekli mobilya işletmelerinde bu kanunun yansımalarını araştırmaktır. Çalışma kapsamında, rastgele örnekleme yöntemi ile seçilmiş olan bu işletmelerde, mevcut durumdaki uygulamalar ve olası tehlikeler yerinde gözlem yoluyla ve fotoğraflarla belgelenerek ortaya konulmuştur.

Anahtar Kelimeler: İş sağlığı ve güvenliği, mobilya işletmeleri, Bartın.

Occupational Health and Safety Practices in Furniture Manufacturing Environment in Bartın Province

Abstract

The law on occupational health and safety first entered into force on June 30, 2012, with the publication in the Official Gazette. As of January 1, 2014, “The Law on Occupational Health and Safety” made it compulsory for not only big businesses but also for small businesses under “risk” group to have occupation safety specialist, doctor and allied health personnel. The law is built on the necessity of following occupational health and safety precautions in order to create a healthier working environment for employees, protect their physical and mental health, identify the risks to prevent business accidents and remove the existing risks.

The purpose of this study is to examine the reflections of this law on some micro, small and medium-scale furniture businesses operating in Bartın province. Within the scope of the study, the existing practices and potential threats in randomly selected businesses are observed and documented with photographs.

Keywords: Occupational health and safety, furniture businesses, Bartın.

1. Introduction

The concept of occupational health and safety has started to be considered as an important term during the industrial revolution which created the worst conditions for the health of the employees (Bostancı and Yalçın, 2011). Research indicates that today three employees are injured in a work accident every three seconds all around the world and one employee dies due to a work accident or job-related illness every three minutes (ILO, 2007). These numbers clearly show how serious the condition is. Occupational health and safety cannot be ignored. There is an increase in numbers due to such reasons as workers are not careful about occupational accidents, they are not trained or precautions towards preventing potential threats are not taken. Also employers see occupational health and safety practices as extra cost, there are not warning signs in the businesses, competent workers are not employed, workers work with tools and machinery that are not the right ones for the job, risk factors are disregarded and ignored.

Statistical data from 2012 indicates that every day 172 work accident happens in Turkey and that 4 employees die as a result of these accidents. The data also indicates that the number of permanent workforce loss was 6.

During the same year, it is seen that a total number of 62903 work accidents happened and 533 occupational disease cases were seen and 1454 employees died because of a work accident and occupational disease (ÇSGB, 2012). Statistical data clearly shows that occupational health and safety practices should be covered within the scope of regulations. As a result of this necessity, The Regulation on Occupational Health and Safety was published on the Official Gazette no 28512 in Turkey and was put into effect on December 29, 2012. The purpose of the regulation is to regulate the authorization of joint workplace health and safety units to be established to carry out the occupational health and safety services as well as the issues of decertification of accreditations, duties, authority, responsibilities and working procedures and principles (Occupational Health and Regulation services, 2012). Within the scope of these objectives, although the regulation published in the Official Gazette is in effect for almost 5 years, when the implementations of the duties, powers and responsibilities of employers and employees are statistically analyzed, it is seen that there are many problems. According to Aydın, despite its extensive regulation, still occupational health and safety does not have a content that responds to all problems. And the Law on Occupation Health and Safety which has been awaited for years and expected to solve many basic problems, does not seem to bring the desired results (Aydın, 2012). On the other hand, based on the needs new arrangements are made on the Law of Occupational Health and Safety every other day in order to reach the desired objectives.

When the statistics of TÜİSAG on sectoral occupational accidents and professional diseases during 2015 are examined, it is seen that it is unskilled labor force working in mining, construction, manufacturing and transportation sectors who rank on the top of the list and those people are followed by food preparation assistants, sales and service workers on the street, garbage collectors and people working in other areas as unskilled labor. The reason behind the fact that most of the occupational accidents and professional diseases are seen in mining, construction, manufacturing and transportation sectors is that these sectors have their unique working conditions. When we look into the working conditions in furniture manufacturing sector, which is our field of study, as every design is different, it is necessary that the working conditions should be planned according to each of these designs (within the scope of workflow diagram). It is kept in mind that planning made for the production of different design and products could bring different occupational accidents along. Woodworking machinery industry has a significant share in this development because the structure and efficiency of the manufacturing system significantly depends on the technological development of the machinery in the system. The desire of the consumers to have different products increases the product diversity, on the one hand, and this necessitates the existing manufacturing systems to have a more flexible structure. Within the scope of occupational health and safety, Mearns, Whitaker, SM and Flin, R. (2003) carried out studies on the low injury rates. Physical working conditions and sectoral differences certainly effect the scope of occupational health and safety.

Besides, since the employees in the furniture-manufacturing sector do not work in inactive and routine work as in other sectors such as bureau services, desk jobs and since they transform a material from the forest into a different product using the forest industry machines they have a dynamic working style. This dynamism increased the risk factors in the working environment. In line with the commission meetings set up based in accordance with the 21st article of the regulation dated 16.12.2003 and published in the Official Gazette No: 25318, furniture manufacturing sector is grouped under 1st risk group.

The number of insured employee with occupational disease in furniture sector is 2. The total temporary workforce loss for Bartın city is (outpatient+ inpatient) is 9.935 days. 711 insured employee had business accidents and 4 people had professional diseases (data from Ministry of Labour and Social Security). As it is seen furniture businesses in Bartın, operating under manufacturing sector, rank at the top of the lists related to occupational

diseases and business accidents.

The concept of international occupational health and safety management system has become widespread in the recent 20 years. Various occupational health and safety management system-based standards, regulations and audits have been developed at international platforms. The concept has been adopted by public, private and non-profit organizations and many sectors. However, there are studies to develop professional and sectoral management standards.

Unfortunately, until today nothing has been done about the security standards in the furniture-manufacturing sector in Turkey. Therefore, another objective of this study is to contribute to the formation of professional standards and sectoral security standards. The main purpose of the current study is to identify and evaluate the role of occupational health and safety practices in the furniture manufacturing businesses in Bartın. Accordingly, this study does not aim to bring any business under suspicion but aims to create a culture of awareness towards urgently taking auto control and preventive measures to prevent worse results that might occur in the future. To sum up, this study aims to prevent possible life and property losses that could arise because of wrong and insufficient application of the law on occupational health and safety by observing about occupational health and safety practices in the furniture businesses in Bartın.

There are many sources in the literature related to the research topic. Some of these sources are Vinzents and Laursen, (1993); VP Aaltonen, (1996); Rodrigues, et al. (2015); Sütçü and Söztanaci, (2015); Adu, et al. (2015) and Top, et al. (2016).

2. Material and Method

Qualitative research method is used in the current study. Bartın province is chosen as the research area and the reflections of the law on occupational health and safety in some micro, small and medium-scale enterprises active in the “furniture sector” is examined. The main objective of the study is to predict and thus, prevent the risks, protect the employees, clear the working conditions and the working environment of the possible risks or to reduce those risks to minimum.

The material in the current study, which is carried out to determine the current state of the occupational health and safety practices in the furniture businesses in Bartın, is micro, small and medium-scale businesses operating in furniture sector in Bartın. The study is carried out with a few of these businesses randomly selected among those which are operating either as registered or unregistered to Bartın Chamber of Commerce and Industry. And in method, occupational diseases and business accidents that could be seen in those businesses as a result of unsecure occupational health and safety activities are researched and photographed. These findings are given under “findings” section of the study. No measurement tool is used in the examinations we made in the businesses and simple observation method is used. No scientific measurement or testing equipment (to measure sound, vibration, formaldehyde emission etc.) is used.

3. Findings

The results of the study clearly show that there are many big deficiencies in the businesses since the date when the relevant law has been put into effect. These deficiencies are grouped as physical risk factors, chemical risk factors, biological risk factors, psycho-social risk factors and are shown in Figure 1, 2, 3 and 4 respectively. When necessary precautions are taken, these risk factors could be prevented before they turn into business accidents and occupational diseases. To do that “a field research as an experience on site” is made and risk factors are evaluated and later, necessary suggestions are given to prevent these risk factors to turn into business accidents and to remove them. The existing practices and possible dangers in the randomly selected businesses make the scope of the study. These is documented with protographs and are shown below:

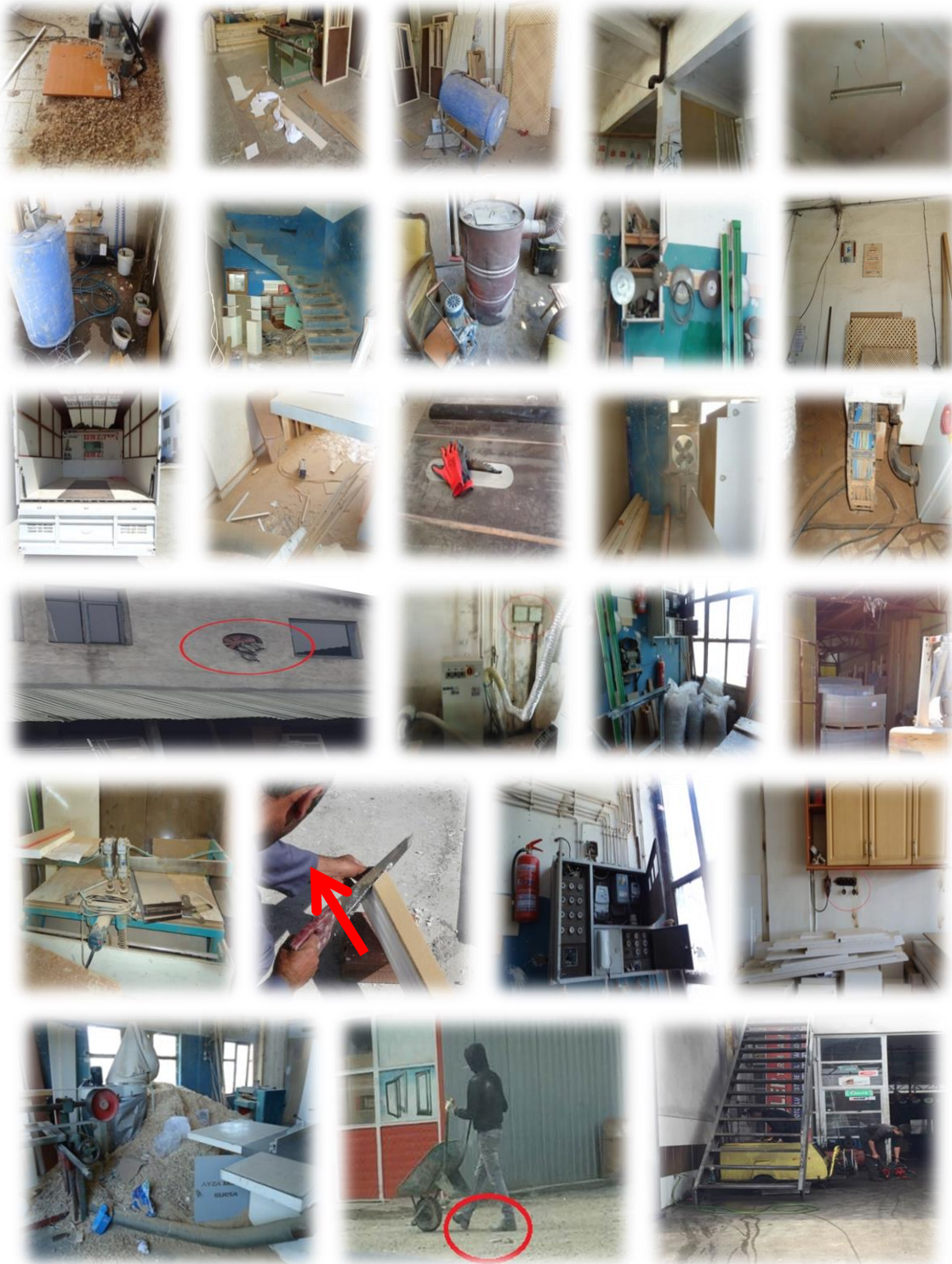


Figure 1. Physical Risk Factors.

The lighting in most of the businesses is insufficient. It is seen that there is no lighting in many businesses and the intensity of the lighting is not adequate. In most of the businesses visited, it is estimated that such tools as bandsaw, circular saw etc. used for cutting exceed the legal limit of 80 dB. This is a noise-driven risk factor threatening employee health.

Such machinery and hand tools as drill and emery are serious risk factors for those workers working with them. It is estimated that there are cases against the legal regulations especially in terms of hand-arm vibration. Employees do not have the required protective stuff to prevent the fall of heavy pieces on their feet. Working clothes are not functional. Workers do not wear their working clothes while working. Such cupboards as the

machine tool cupboards etc. are not well mounted well on the walls. Air-conditioning systems are not designed according to working conditions. The working environment is unorganized. The heating systems in the businesses are not convenient for the working environment.



Figure 2. Chemical Risk Factors

Chemical risk factors are photographed as shown in Figure 2. Such surface treatment materials as paint, varnish and thinner etc. are randomly piled. To prevent burning or combustion of the chemical materials in the working environment, it is important to store and use these chemical stuff carefully. To control the burning, flaming and combustion of the chemical materials it is necessary to know the features of those chemicals and the damages they could cause and to make a risk assessment. However, employees work without knowing all these and controlling the material they work with. This is a very risky way of working. Workers keep working without closing the cap of the materials. They store flammable and inflammable materials by the side of heating stoves and lower their flash point. There is a risk of fire in stove etc. and it is seen that workers smoke by the side of stoves. Workers do not use personal protectors and the ones they use do not comply with the standards. As workers do painting without using gloves, it is seen that corrosive materials caused to tissue damages. Solvent-based painting, which creates significant risk of fire, is used in the process. This could cause to a business accident with the outbreak of a fire caused by the reacting of gases. The second biggest risk is dust. There are not sufficient dust collecting equipment in most businesses.

As it is seen in the figure, most of the businesses have fire extinguisher tubes however; they are expired since their periodical controls are not made. It is seen that there are expired fire extinguisher tubes.



Figure 3. Biological Risk Factors.

As biological risk factors, fungus, insects etc. arising as a result of materials stored in damp and dark places could threaten workers' health. Unattended dogs, cats as well as pigeons, birds nesting inside the business could carry biological microorganisms such as parasites and microbes which could threaten human health. These businesses have risks of fungi, bacteria etc.



Figure 4. Psychosocial Risk Factors.

Most of the workers are not completely physically and mentally healthy in terms of the working environment, their wages, and relationships with headworker and chiefs. Most of them have a risk to have diseases which could threaten worker health psycho-socially.

4. Result and Suggestions

The rate of physical risk in furniture businesses is found as 80%. This is followed by chemical risks with a rate of 15%. The remaining 5% belongs to biological and psycho-social risk factors.

As it is seen physical risk factors are elements such as noise, vibration, lighting, radiation, heat etc. which effect workers' health and which arise due to bad physical conditions. The use of machines causing to noise in furniture businesses could cause to psychological, biological and physical diseases among workers. Noise, in the long term, could cause to loss of hearing. Therefore, to prevent hearing loss, workers should use ear plugs or individual ear protectors while working. Machines which cause to noise should be placed to a balanced ground far from the main working area. An unbalanced ground could cause the machine to create vibrations. Saws, cutting, crashing, shaping tools used in furniture industry create vibrations while using. And depending on the type of vibration (hand-arm vibration, vibration affecting the whole body) this effect workers' health negatively. And this effect could cause to degenerations in bone, muscle, joint and nerves. When the vibrations are stronger, it could cause to damages in the bones, spine and even in the stomach. The workers should not use these tools for long periods.

Convenient lighting systems are not designed in the businesses. Either the lights are not mounted well or the best lighting method is not chosen. Inconvenient lighting effect the eye health of the workers negatively. A disorder in eye health makes the detection of the workers harder. According to a report of the United States National Security Council, bad lighting is the reason for 5% of the business accidents and this rate, when evaluated with eye fatigue resulting from bad lighting, reaches up to 20% of the business accidents (ÇSGB, 2014). Business accidents could happen due to insufficient lighting or the fall of lights. In order to protect the eye health of the workers, it is necessary to make regular eye controls, use protective eye accessories and revise the lighting in a way to protect the eye health. Lights should be mounted properly on the walls.

Thermal comfort conditions in the furniture businesses are not convenient. Thermal comfort is defined as the workers' state of certain comfort in terms of certain climate conditions such as the heat, moist and air flow while doing physical and mental activities while working (Ede, 2011). In almost all of the observations made, it is seen that the thermal comfort conditions are not convenient for workers' health. The working environments are unorganized. And this unorganization could cause to business accidents. Workers leave portable wires exposed around and this could cause to injuries because people could trip and fall. Wrong piling is made. The fall of the piled stuff could cause to physical injuries. The waste occurring while working are collected at the end of the work. For instance, the saw dust is bagged and kept in the working environment. Businesses are dirty. The places are not left in an organized way after the work is completed. After the work is completed, workers leave the waste outside the business and this threatens the environment. Inconvenient thermal comfort conditions pose a risk to the workers' health. To prevent these risks, the workplace should always be kept clean and organized; and should be frequently ventilated. The workers should leave their workplace organized after they finish their work.

There are sharp tools in the workplace which are not mounted well on the wall. The fall of these sharp tools could cause to injuries or even death. These kind of tools should be mounted well on the wall.

There are no safety rail handles in the stairs in the workplace. This could lead to falls and thus, to injuries. Safety rail handles should be added to the stairs in the workplace to protect workers from potential business accidents.

Electric wires and distribution board caps are left open. The periodical maintenance of the electricity wiring is not done. The plugs in the workplace are filled with dust and sawdust. This could lead to fire and electricity shocks. Workers work close to the high-voltage board. There are no security warnings on electrical panel. There is no non-conducting mat under the electrical panel. There is no earthing on the hand tools and equipment used. There is no protective cap on heavy equipment or they are not used after the work is finished. Electricity wires should not be left exposed, the caps of the electrical panels should be closed after the work is finished and even they should be locked. Periodical maintenance of the electricity wiring should be made. Old plugs should be replaced with new ones. The dust and sawdust should be cleaned with a dry cloth after the work is finished. Security signs should be pinned on the electricity panel and a non-conducting mat should be put under the electricity panel.

Psycho-social factors affecting the workers should be enhanced. Unattended animal like dogs, cats, pigeons etc. in the working environment should be removed. Right ventilating systems are not established. The fans used by the businesses are not in the right size and function. There are corrosions in the fans due to accumulation of wood, sawdust etc. cut in the workplace. Right ventilation can not be done due to corrosion. Besides, workers inhale polluted air because the exit fans of the polluted air is placed close to the workers whilst the entrance fan of the fresh air is placed behind. Therefore, the workers are kept away from the fresh air and right ventilation is inefficient. There is no dedusting system in the heavy equipment. Mechanical ventilation system is insufficient

in the furniture manufacturers. Unless proper conditions are provided, workers could have pneumoconiosis or respiratory system diseases. Since there is no ventilation system, fresh air can not enter the workplace. Heat and moist are appropriate for thermal comfort conditions. Insufficient insulation on the wall and ceiling could cause to mold due to the distribution of moist and lack of ventilation. Explain this risk of fire and explosion increases. The best suggestion is to remove the conditions that could cause to business accidents and thus, reduce the risk of business accidents.

References

1. **Adu S, Adu G, Effah B, Kwasi F M, Antwi-Boasiako C (2015)**. Safety Measures in Wood Processing: An Important Component for the Entrepreneur-The Case of a Local Furniture Industry in Ghana. *Safety*, 4(5).
2. **Aydın U (2012)**. “İş Sağlığı ve Güvenliği Kanunu Tasarısı Üzerine”, *Sicil Dergisi*, Haziran, ss. 10-18.
3. **Bostancı Y (2011)**. “ İşverenin iş sağlığı ve güvenliğine ilişkin yükümlülüklerin yerine getirmemesi ve yaptırımları ” Selçuk üniversitesi hukuk fakültesi dergisi, cilt 12, sayı: 1-2, s:68.
4. **ÇSGB (2012)**. İş kazaları istatistikleri-2012 verileri.
5. **ÇSGB (2014)**. İş Sağlığı ve Güvenliği Uygulamaları Rehberi, 17.
6. **Ede Y (2011)**. İş Sağlığı ve Güvenliği. Atatürk Üniversitesi, Fiziksel risk etmenleri ünite 3, 12.
7. **ILO (2007)**. International Labour Office: “Key Indicators of the Labour Market”, 5th Ed., Geneva.
8. **İSGÜM (2011)**. Endüstriyel Havalandırmaya Giriş, İş Sağlığı ve Güvenliği Merkezi Müdürlüğü, 3.
9. **Mearns, K., Whitaker, SM and Flin, R. (2003)**. Safety Climate, Safety Management Practice and Safety Performance in Offshore Environments” *Safety Science*Güvenlik iklimi, güvenlik yönetim uygulaması deniz ortamlarda ve güvenlik performansı. *Güvenlik Bilimleri*, 41, 641-680.
10. **Rodrigues MA, Arezes PM, Leão CP (2015)**. Defining risk acceptance criteria in occupational settings: A case study in the furniture industrial sector. *Safety science*, 80, 288-295.
11. **Sütçü A ve Söztanaci C, (2015)**. “Bir Mobilya Fabrikasında İş Kazalarının Önlenmesi ve İş Güvenliğinin Arttırılmasına Yönelik Örnek Uygulamalar”, 21. Ulusal Ergonomi kongresi, 2-4 Ekim 2015, Isparta.
12. **Top Y, Adanur H, Öz M (2016)**. Comparison of practices related to occupational health and safety in microscale wood-product enterprises. *Safety Science*, 82, 374-381.
13. **TUİSAG (2015)**. Yıllık iş kazaları istatistikleri: <https://tuisag.com/yillik-is-kazalari-istatistikleri/>
14. **Vinzens P, Laursen B (1993)**. A national cross-sectional study of the working environment in the Danish wood and furniture industry-air pollution and noise. *The Annals of occupational hygiene*, 37(1), 25-34.
15. **VP Aaltonen M (1996)**. Occupational injuries in the Finnish furniture industry. *Scandinavian journal of work, environment & health*, 197-203.